

APPENDIX II

Proposed FCC Applications

20.1 Pershing Missile.

To gain experience and discover problem areas, an instrumentation unit from an Army Pershing Missile, 40 inches in diameter and 60 inches long, was converted to FCC for all except heavy power wiring (Figure II-A).

20.2 Mark 17 Minuteman.

Extensive studies conducted by AVCO indicated the feasibility of converting to FCC aluminum conductors and shields for weight reduction. Termination to existing Bendix LJT round connectors would be made by a transition to aluminum round wire, utilizing weld-through techniques. Shield continuation and termination was to be made at the connector by external conductive coatings over the potted areas.

20.3 Poseidon.

A proposal was made to use FCC in the tunnel area of the Poseidon missile to reduce weight and space requirements. System design, connector design, and prototype procurement was accomplished.

20.4 Apollo Telescope Mount (ATM).

FCC (with a total of 2500 conductors) will be used for transferring electrical signals across two interfaces in the torque-sensitive gimbal system of the ATM. The ATM is being designed and built by NASA/MSFC. FCC was selected over round wire cable primarily because of its low torque requirements (approximately 0.1 of that required for round wire cable). Two types of FCC will be used. The 2-1/2-inch signal cable is Kapton insulated and contains 32 conductors (3 x 50 mils). The 2-1/2-inch power cable is also Kapton insulated and contains 8 conductors (3 x 250 mils) (Figure 3-83).

20.5 Boeing 747 Aircraft.

Boeing designed an FCC configuration to meet requirements of a 200-foot-long, 90kVA, three phase, Auxiliary Power Unit (APU) feeder system used in the 747 commercial transport airplane. FCC was evaluated as part of a continuing effort to achieve greater weight reduction in airplane design. Results of laboratory temperature rise and impedance tests indicated that FCC, with 77 percent of the conductor cross-sectional area of installed round wire, could fulfill electrical requirements of the 747 APU.

20.6 Solar Array.

NASA/MSFC has accomplished the initial design of the solar array for the Saturn I Orbital Workshop using the low profile and small bend radius characteristics of FCC for power and instrumentation interconnections between the solar cells and power junction boxes.

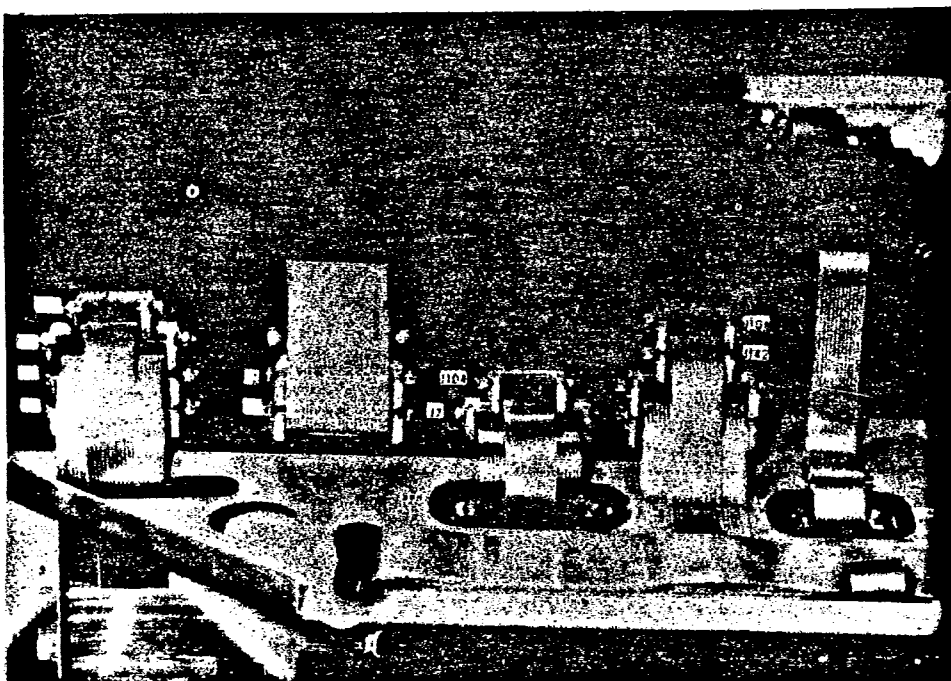
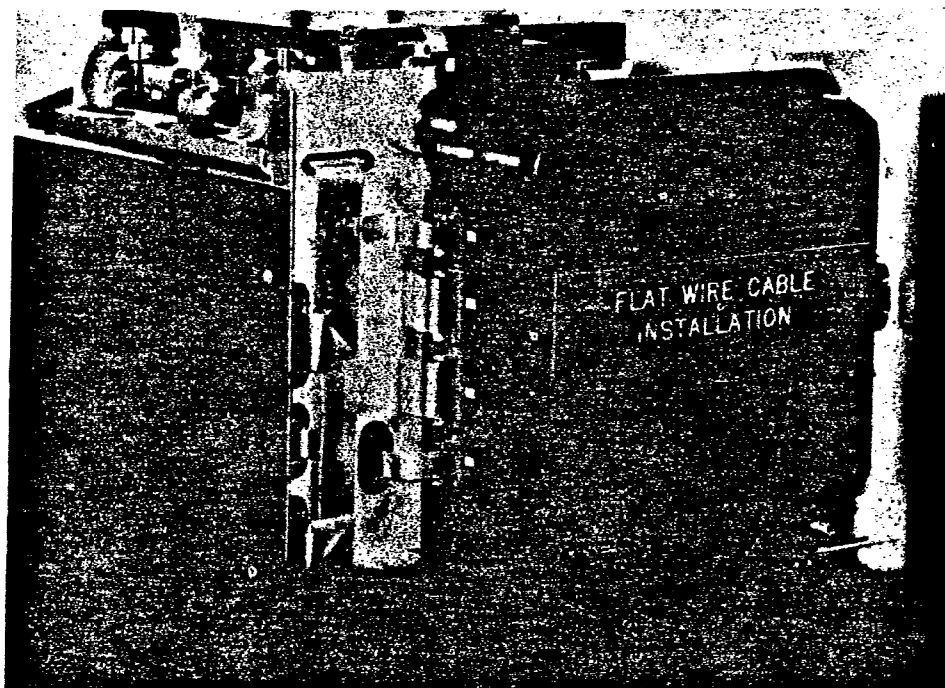


Figure II-A. FCC mockup for the Army Pershing Missile.